NON-SALTATORIAL AND ACRIDOID ORTHOPTERA FROM SAPUCAY, PARAGUAY.

BY JAMES A. G. REHN.

The following records and descriptions are based on an extensive series of specimens collected by Mr. W. T. Foster and now forming part of the collection of Mr. Morgan Hebard, of Chestnut Hill, Philadelphia.

Considerable work has already been done on the Orthopterous fauna of Sapucay, but an idea of the richness of this region in species may be formed when we consider that in addition to the number already recorded seven new ones are here described.

Four papers have been published bearing wholly or in the greater part on the Orthoptera of Sapucay,[1] all of which have been of great assistance to me in studying this large series of specimens. One of the first of these papers treated of a small collection secured by Mr. Hebard from Sapucay, the results proving of such interest that he immediately endeavored to secure a more representative collection, an effort well repaid by the magnificent series of specimens available for study.

In many cases notes on the variability of series, both in size and coloration, have been given, while comparisons with available material from adjacent regions have frequently furnished information worthy of record. Species which are here recorded from Sapucay for the first time are preceded by an asterisk.

The Tettigonidæ (Locustidæ) and Gryllidæ of this collection will be the subject of a future contribution.

The author wishes to thank Mr. Hebard for the opportunity to study this collection, a considerable representation of which has been generously presented to the Academy.

FORFICULIDÆ.

APTERYGIDA Westwood.

Apterygida linearis (Eschscholtz).

1 ♀. November, 1902.

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[1] *Rehn, J.A.G.* Records of some Paraguayan Orthoptera, with the Description of a New Genus and Species. *Ent. News*, XVI, pp. 37–42.

Caudell, A. N. On a Collection of Non-Saltatorial Orthoptera from Paraguay. *Journ. N. Y. Ent. Soc.*, XII, pp. 179–188.

Bruner, L. Synoptic List of Paraguayan Acrididæ, with Descriptions of New Forms. *Proc. U. S. Nat. Mus.*, XXX, pp. 613–694.

Caudell, A. N. The Locustidæ and Gryllidæ (Katydids and Crickets) collected by W. T. Foster in Paraguay. *Proc. U. S. Nat. Mus.*, XXX, pp. 235–244.

BLATTIDÆ.

PSEUDOMOPINÆ.

ISCHNOPTERA Burmeister.

Ischnoptera vilis Saussure.

1869. *I[schnoptera] vilis* Saussure, Revue et Magasin de Zoologie, 2e ser., XXI, p. 112. [Argentine Pampas.]

9 ♂. February, March and October, 1902; January to March, 1905.

In several of these specimens the reddish lateral margins of the pronotum are less pronounced than in others.

Ischnoptera brasiliensis Brunner.

1865. *I[schnoptera] brasiliensis* Brunner, Nouv. Syst. Blatt., p. 130. [Brazil.]

2 ♂. April and May, 1902.

These individuals are somewhat smaller than the measurements given by Brunner, but in other respects are typical of the species.

NYCTIBORINÆ.

NYCTIBORA Burmeister.

***Nyctibora vestita** Saussure.

1864. *Paratr[opes] vestita* Saussure, Revue et Magasin de Zoologie, 2e ser., XVI, p. 308. [Brazil.]

1 ♂, 1 ♀. December, 1904; March, 1905.

This species was originally synonymized with *N. crassicornis* Burmeister by Brunner, a proceeding which seems to the author not exactly justified by the published descriptions at least. Burmeister's *crassicornis* appears, from the description given by Brunner, to be a larger species without the very distinct single central blotch on the pronotum; Saussure's *vestita*, on the other hand, has the median spot distinct.[2] The size of *crassicornis* given by Brunner shows that the pronotum was larger by at least one millimeter in both directions than in the available material.

The specimens in hand have the median patch on the pronotum solid, without sign of division, and somewhat resembling that of *N. omissa* Brancsik[3] from Catamarca, Argentina, though more rounded and not as transverse. The anal vein of the tegmen is also finely lined with black, in addition to the discoidal vein and sutural margin.

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[2] *Mém. Mex. Blatt.*, p. 64.

[3] *Jahresheft Naturwissen. Ver. Trencsiner Comitates*, Trencsén, XXIV, p. 186, tab. III, fig. 1, 1*a* and *b*.

EPILAMPRINÆ.

PARATROPES Serville.

***Paratropes elegans** (Burmeister).

1838. *Ph[oraspis] elegans* Burmeister, Handb. d. Entom., Bd. II, Abth. II, pt. I, p. 493. [Probably Surinam.]

1. ♂. February, 1905.

This specimen differs from Brunner's interpretation [4] of the species in that the limbs are solid black, the coxæ finely margined with pale yellowish, the face without the transverse line dorsad of the labrum, and the antennæ with a narrow annulus instead of having the terminal portion all yellowish. When compared with the descriptions of other species of the genus the individual in hand agrees closer with that of *elegans*, differing in the color characters here given.

EPILAMPRA Burmeister.

***Epilampra brasiliensis** (Fabricius).

1775. [*Blatta*] *brasiliensis* Fabricius, Syst. Entom., p. 272. [Brazil.]

1 ♂, 1 ♀. February and March, 1905.

This species has also been recorded from San Pedro Province, Paraguay.

PANCHLORINÆ.

PANCHLORA Burmeister.

***Panchlora hyalina** (Stoll).

1813. [*Blatta*] *hyalina* Stoll, Natuur. Afbeeld-Beseh. Kakkerlakken, p. 5, 14, pl. III d, fig. 12. [No locality.]

1 ♂. March, 1905.

This name appears to be applicable to the species generally known as *Panchlora viridis* Burmeister.

MANTIDÆ.

MANTINÆ.

ACONTISTA Saussure.

Acontista bimaculata Saussure.

1870. *A[contista] bimaculata* Saussure, Mittheil. Schweiz. Entom. Gesell., III, p. 229. [Brazil.]

9 ♂, 4 ♀. February and March, 1905.

As the female of this species has never been described the following diagnosis may prove of service.

Form robust, as is usual in females of this genus. Head with the occipital outline slightly arcuate, almost straight mesad, more arcuate

[4] *Nouv. Syst. Blatt.*, p. 150.

laterad, the prominent lateral vertical sulci cutting the occipital outline; ocelli disposed as in the male but much smaller; facial scutellum shaped as in the male; antennæ slender, subfiliform, not exceeding the head and pronotum in length. Pronotum shaped very much as in the male, but shorter and consequently with the dilation extending more caudad, and the constricted caudal section shorter. Tegmina short, but very slightly longer than the pronotum, costal margin evenly rounded, apex subrectangulate, sutural margin slightly arcuate in the distal two-thirds, rather abruptly and obliquely curved on the proximal third; stigma distinct. Abdomen strongly depressed, expanded; supra-anal plate broadly and roundly trigonal; cerci slightly surpassing the apex of the plate. Cephalic limbs very robust; coxæ hardly exceeding the pronotum in length, subquadrate in section; femora slightly longer than the coxæ.

General color pale apple green; eyes pale walnut brown. Tegmen with the stigma bistre. Wing brick red, the greater part of the marginal section of the caudal area rich glossy blue black, the transverse veins hyaline and touched with brick red.

Measurements.

Length of body,	23	mm.
Length of pronotum,	6	"
Greatest width of pronotum,	3.5	"
Length of tegmen,	5.5	"
Greatest breadth of abdomen,	8.5	"
Length of cephalic femur,	7	"

Two males and one female are washed more or less strongly with brownish.

This species has also been definitely recorded from the Provinces of Goyaz and Rio Grande do Sul, Brazil.

BRUNNERIA Saussure.

1869. *Brunneria* Saussure, Mittheil. Schweiz. Entom. Gesell., III, pp. 58, 71.

Type.—*B. subaptera* Saussure.

Brunneria brasiliensis Saussure.

1870. *B[runneria] brasiliensis* Saussure, Mittheil. Schweiz. Entom. Gesell., III, p. 240. [Brazil.]

8 ♂, 14 ♀. February and March, 1905.

This series shows that the species is moderately uniform in size and possesses well-marked green and brown phases in the female, the thorax and abdomen varying in accord with the general phase.

***Brunneria subaptera** Saussure.

1869. *B[runneria] subaptera* Saussure, Mittheil. Schweiz. Entom. Gesell., III, p. 71. [Argentine Pampas.]

2 ♂. March, 1905.

These two specimens are larger than the same sex of *brasiliensis*, with the ocelli smaller and the antennæ and cerci longer. One specimen (March 5) has the character of the cerci and antennæ more marked than the other, and measurements of both specimens with those of an average male of *brasiliensis* are here given.

	brasiliensis.	*subaptera.*	
Length of body, ...	73 mm.	90.5 mm.	94 mm.
Length of antenna, ...	33.5 "	29.5+ "	48 "
Length of pronotum, . . .	24.5 "	31 "	32.5 "
Length of tegmen, ...	35 "	37.2 "	40.5 "
Length of cephalic femur, . .	15.8 "	18.6 "	19 "
Length of cercus, ...	8 "	12 "	15.5 "

This species has been recorded from the north of Patagonia and the Pampas, and specifically from Bahia Blanca, Argentina. A female individual from Carcaraña, Argentina, determined by Prof. Bruner as *B. brasiliensis*, is clearly referable to *subaptera*, the shape of the supra-anal plate and the length of the cerci being typical of this species.

COPTOPTERYX Saussure.

1869. *Coptopteryx* Saussure, Mittheil. Schweiz. Entom. Gesell., III, pp. 56, 66.

Type, as selected by Kirby, *C. claraziana* Saussure = *C. crenaticollis* (Blanchard).

***Coptopteryx crenaticollis** (Blanchard).

1851. *Mantis crenaticollis* Blanchard, in Gay, Hist. Fis. Polit. de Chile, Zool., VI, p. 22. [Chile.]

2 ♂. February, 1905.

These specimens are clearly referable to this species, of which a female from Carcaraña, Argentina, has also been examined. Giglio-Tos has recorded the species from San Pedro Province, Paraguay.

***Coptopteryx gayi** (Blanchard).

1851. *Mantis Gayi* Blanchard, in Gay, Hist. Fis. Polit. de Chile, Zool., VI, p. 21. [Chile.]

3 ♂, 4 ♀. December, 1904; January, 1905.

This species can easily be recognized in the female by the elongate pronotum, and separated from *C. argentina* by the longer, slenderer median and caudal limbs and weaker cephalic limbs, while *C. crenaticollis* is distinctly smaller and comparatively more robust. The male, on the other hand, bears a very considerable resemblance to that

of *C. argentina*, and might easily be considered only a brownish specimen of that species. However, a close examination discloses several very good characters to separate the two species, such as the more compressed shaft of the pronotum, the narrower supra-coxal dilation and weaker cephalic limbs. All the specimens examined are of various shades of brown, one male having the limbs clear green, while one male and one female have the same parts touched with the same color.

A female specimen from Rio Grande do Sul, Brazil, received from Dr. Saussure and determined by him as *C. gayi*, is distinctly smaller than Sapucay females and has the margins of the pronotum with somewhat heavier spines, but does not appear separable otherwise. The measurements of a Sapucay female and of the Rio Grande do Sul individual are as follows:

	Sapucay.	*Rio Grande do Sul.*
Length of body,	80.5 mm.	62 mm.
Length of pronotum,	25.5 "	20 "
Greatest width of pronotum,	7 "	5.5 "
Length of tegmen,	13.2 "	11.5 "
Length of cephalic femur,	19 "	15.5 "

Coptopteryx argentina (Burmeister).

1864. *M[antis] argentina* Burmeister, Berlin Entom. Zeitsch., VIII, p. 208. [Argentina between Buenos Ayres and Mendoza.]

7 ♂, 10 ♀. December, 1904; January to March, 1905.

This series is rather uniform in size and quite so in coloration.

PHOTINA Burmeister.

1838. *Photina* Burmeister, Handb. d. Entom., Bd. II, Abth. II, pt. I, p. 531.

Type.—*P. vitrea* Burmeister.

Photina brevis n. sp.

Type: ♂; Sapucay, Paraguay. March 5, 1905. (William Foster.) [Hebard Collection.]

Very closely allied to *P. vitrea* Burmeister, but differing in the shorter pronotum and the more numerous rami of the discoidal vein of the wing.

Size medium; form moderately slender. Head broad, trigonal, occipital outline moderately arcuate; ocelli large, placed in a broad triangle, apex ventrad; eyes moderately projecting laterad; facial scutellum strongly transverse, dorsad with a median arcuation, sinuate laterad, ventrad margin slightly concave; antennæ slightly exceeding the head and pronotum in length, sub-moniliform. Pronotum with the cephalic section moderately expanded, not constricted cephalad

but rounding narrowly from the greatest expansion to the cephalic margin; shaft slightly exceeding the expanded portion in length, moderately narrowed, slightly expanded caudad; margins unarmed, dorsum without distinct carina. Tegmen large, hyaline except for the semi-opaque costal field, in shape elongate-ovate, the greatest width at the distal third, costal and sutural margins arcuate proximad and distad, apex narrowly rounded; median vein furcate with each arm again furcate; discoidal vein furcate proximad, the caudal arm again furcate; principal axillary veins three in number; stigma very weak, linear, crossing the discoidal vein. Wing about twice as long as broad, costal margin straight in the proximal two-thirds, strongly arcuate in the distal third, apex slightly acute, narrowly rounded, caudal margin of the projecting portion of the anterior field nearly straight, oblique; humeral vein furcate near the base, the rami parallel for the greater part of their length; median vein furcate near the apex; discoidal vein trifurcate, the first being almost at the base, the second nearly mesad, the third about the proximal third; axillary vein bifurcate, the first not far from the base, the other near the apex. Abdomen rather slender; supra-anal plate short, trigonal; subgenital plate moderately produced and provided distad with two small styles; cerci slender, acute, moderately exceeding the subgenital plate. Cephalic coxa about two-thirds the length of the pronotum; cephalic femur somewhat shorter than the pronotum, rather slender, armed with six spines on the external margin (counting the genicular spine) and twelve of two sizes on the internal; tibia slightly more than half the

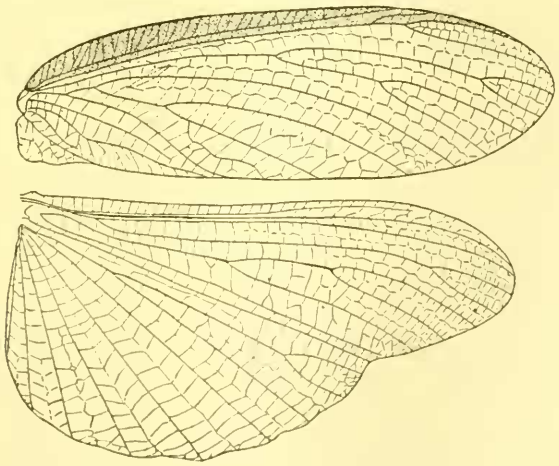

Fig. 1.—*Photina brevis* n. sp. Tegmen and wing of male type. (× 2.)

length of the femur, armed on the external margin with thirteen spines and twelve on the internal. Median and caudal limbs rather slender.

General color pale apple green becoming weak parrot green on the abdomen. Eyes walnut brown; antennæ cinnamon; ocelli glassy crimson, their peduncles rather yellowish. Cephalic femora with the larger spines on their internal margins marked proximad with blackish, the proximal section of the femora also with two circular blackish spots on the ventral portion of the internal face; tibiæ washed with yellowish. Tegmina with the semi-opaque costal area weak apple green, remainder hyaline but the nerves of the same greenish. Wings with the costal margin washed with greenish, the remainder hyaline, the nerves greenish as in the tegmina.

Fig. 2.—*Photina brevis* n. sp. Dorsal view of male pronotum. (× 3.)

Measurements.

Length of body,	41	mm.
Length of pronotum,	10.5	"
Greatest width of pronotum,	3.5	"
Length of tegmen,	35	"
Greatest width of tegmen,	11.2	"
Length of cephalic femur,	9	"
Length of caudal femur,	11.2	"

Two females have also been examined, one taken in February, the other in March, 1905. These individuals differ in no essential particulars from the type.

PARAMUSONIA Rehn.

1894. *Musonia* Saussure and Zehntner, Biol. Cent.-Amer., Orth., I, p. 64. (Not of Stål, 1877.)
1904. *Paramusonia* Rehn, Proc. U. S. Nat. Mus., XXVII, p. 567.

Type.—*Thespis cubensis* Saussure.

Paramusonia livida Serville.

1839. *Thespis livida* Serville, Orthoptères, p. 172. [Brazil.]

Six ♂. April and May, 1902; February and March, 1905.

These specimens are very slightly larger than the measurements given by Serville: "Long 1 pouce au moins, non compris la lame abdominale . . . . prothorax long de trois lignes au moins." Several of the individuals seen about equal the length of body of this species

given by Caudell.[5] In all the specimens the tips of the tegmina fall in repose at least a millimeter short of the tips of the wings.

CREOBOTRINÆ.

ACANTHOPS Serville.

1831. *Acanthops* Serville, Ann. Sci. Nat., XXII, p. 52.

Type.—*Mantis fuscifolia* Olivier = *Mantis sinuata* Stoll.

Acanthops sinuata (Stoll).

1813. [*Mantis*] *sinuata* Stoll, Natuur. Afbeeld. Besch. Spooken, pp. 12, 77, pl. IV, fig. 14. [Surinam.]

8 ♂, 10 ♀. November, 1904, to March, 1905.

This series shows some variation in size in both sexes, and also in the shade of the general coloration. Some individuals are decidedly blackish brown and others are practically ferruginous, the average, however, being darker. The tegmina of the females in no case exceed twenty-four millimeters in length.

VATINÆ.

OXYOPSIS Caudell.

1869. *Oxyops* Saussure, Mittheil. Schweiz. Entom. Gesell., III, pp. 56, 66. (Not of Schönherr, 1826.)
1904. *Oxyopsis* Caudell, Journ. N. Y. Ent. Soc., XII, p. 184.

Type.—*O. rubicunda* (Stoll).

***Oxyopsis lobeter**[6] n. sp.

Type: ♀; Sapucay, Paraguay. January 26, 1905. (William Foster.) [Hebard Collection.]

Allied to *O. media* and *obtusa* (Stål) from Brazil, but with the tegmina and wings much longer, the limbs also somewhat longer, while the general size is about the same. The proportions of the exposed section of the wings is as in *obtusa*, and the eyes are rectangulate laterad as in that species. The relationship is apparently closer to *obtusa* than to *media*.

General size rather large. Head depressed, very broadly trigonal, occipital outline straight, cephalic section of the occiput flattened, except for four spaced longitudinal depressions, and forming an obtuse angle with the portion of the head ventrad of the insertion of the antennæ; ocelli very small, well spaced in a broad unequal triangle; facial scutellum transverse, the dorsal margin straight mesad and

[5] *Journ. N. Y. Ent. Soc.*, XII, p. 184.

[6] Λωβητηρ, *destroyer*.

obliquely emarginate laterad, ventral margin very slightly concave; eyes produced laterad, rectangulate, sub-mammilliform. Pronotum elongate, the collar contained slightly more than three times in the length of the shaft, supra-coxal dilations moderate, the collar hardly constricted cephalad of the expansion; margins serrato-dentate, the serrations becoming fewer and smaller caudad, shaft carinate throughout its length, the carina weak mesad. Abdomen considerably depressed, broad. Tegmen broad, subequal, the width being contained two and a half times in the length; costal margin nearly straight, slightly rounded proximad, obliquely rounded distad, sutural margin nearly straight, apex rather broadly rounded; costal field very broad, in its widest section two-fifths the width of the entire tegmen, costal veins about twelve in number, strongly oblique and curved toward the apex in the distal section; humeral vein furcate near the apex; median vein with two rami; discoidal vein with two rami the caudal of which is furcate; stigma distinct, irregular. Wing with the greatest width contained about twice in the length, the portion extending beyond the tip of the tegmen when in repose being trigonal and broader than long. Cephalic coxa nearly three-fifths as long as the pronotum, all the margins serrato-spinose, the ventral margin with spines of two different sizes; cephalic femur nearly three-fourths the length of the pronotum, slender, armed on the external margin with four spines and seven large and nine small ones on the internal margin,

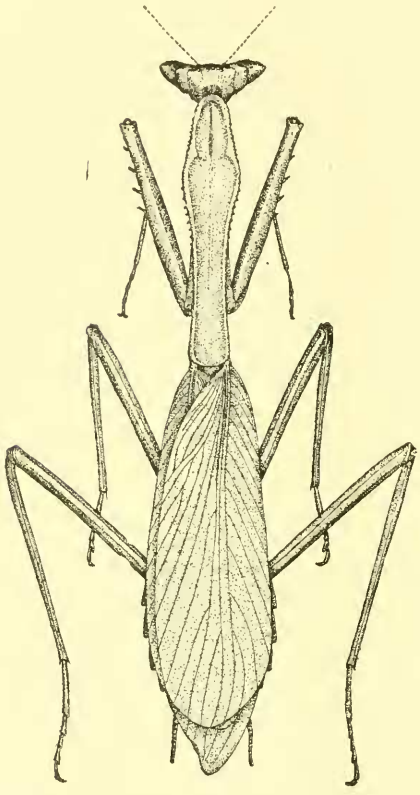

Fig. 3.—*Oxyopsis lobeter* n. sp. Dorsal view of type. (× 1½.)

Fig. 4.—*Oxyopsis lobeter* n. sp. Cephalic view of head. (× 2.)

a median line of small tubercles are present on the proximal portion of the ventral surface; cephalic tibia not quite half the length of the femur, armed with ten spines on the external margin and sixteen on the internal. Median limbs rather slender, of moderate length; caudal limbs very considerably longer than the median.

General color dull olive green, touched in many places with bice green and parrot green. Head touched with yellowish, the eyes seal brown. Pronotum with considerable brownish on the shaft. Tegmina passing from nearly bottle green proximad and on a section of the costal area through pea green to apple green in the distal half of the discoidal area and oil green in the costal section; hyaline interstices limited to the pea green area and the apple green section immediately adjoining it in the discoidal field; stigma touched with brown. Wings with the exposed section coriaceous and opaque oil green; remainder of the wings, except a narrow greenish touch along the costal margin, hyaline with the transverse veins rather broadly touched with gamboge yellow. Cephalic femora and tibiæ with the principal spines almost entirely blackish-brown, the others touched with the same color. Median and caudal limbs with the femora mars brown, the tibiæ and tarsi oil green.

Measurements.

Length of body,	61.5 mm.
Length of pronotum,	24.5 "
Greatest width of pronotum,	5 "
Length of tegmen,	32 "
Greatest width of tegmen,	12 "
Greatest width of costal field,	5 "
Length of cephalic femur,	17.2 "
Length of median femur,	15 "
Length of caudal femur,	19 "

A paratypic female, taken December 20, 1904, is essentially similar to the type though slightly larger. The color pattern of the tegmina is not as marked in it as in the type and the hyaline interstices more numerous and extensive.

PHASMIDÆ.

BACTERIINÆ.

CEROYS Serville.

***Ceroys coronatus** (Thunberg).

1815. *P[hasma] coronata* Thunberg, Mém. l'Acad. Imp. Sci. St. Pétérsb., V, p. 299. [No locality.]

1 ♀. December, 1904.

As far as the brief original description goes this specimen appears to represent Thunberg's species. In the absence of any recent information on Thunberg's original specimen of this species, the individual in hand may justly be considered the same as *coronata* until further knowledge disproves or substantiates the association.

Measurements of the Sapucay Specimen.

Length of body,	106 mm.
Length of pronotum,	4.5 "
Length of mesonotum,	27.5 "
Length of metanotum (including median segment),	18 "
Length of abdomen,	49.5 "
Length of cephalic femur,	20.5 "
Length of median femur,	15.5 "
Length of caudal femur,	21 "

CLITUMNINÆ.

STELEOXIPHUS[1] n. gen.

Type.—*S. catastates* n. sp.

A member of the Clitumninæ and related to *Paraleptynia* and *Ceratiscus* Caudell, both described from Sapucay. The genus *Paraleptynia* was based on a male individual, while a female is the only available representative of the new genus. The antennæ are shorter than in *Paraleptynia* and with some of the segments of different proportions, while the general slender form agrees with that genus. The chief character of *Ceratiscus*, which was based on a female, is the elongate opercule which is also present in *Steleoxiphus*, although the form of the latter is by no means as robust, being slender as in *Paraleptynia* with the limbs not lobed or serrate. The character of the antennæ is more similar to that of *Ceratiscus* than of *Paraleptynia*.

Form very elongate; surface glabrous. Head with the eyes very small; antennæ very little longer than the head and pronotum, proximal joint over twice as long as broad, strongly depressed laterad and proximad, second joint more rounded and hardly half the length of the proximal, third joint similar to the second but slightly longer, the fourth to sixth joints similar to the second and from the seventh they evenly increase in length distad. Mesonotum and metanotum (including median segment) subequal in length; median segment longer than broad. Subgenital opercule produced into a compressed, elongate, hastate process. Limbs slender, unarmed.

[1] Στηλη, *post*; ξιφος, *sword*.

*Steleoxiphus catastates[8] n. sp.

Type: ♀; Sapucay, Paraguay. March 5, 1905. (William Foster.) [Hebard Collection.]

Size medium. Head slender, subparallel, the caudal width contained about two and a half times in the length; occiput with a very fine median longitudinal impressed line and a lateral one extending caudad from each eye; eyes subcircular, strongly flattened when viewed dorsad; ocelli distinct but small and placed in a large triangle between and immediately caudad of the antennæ. Pronotum slender, slightly compressed mesad, a distinct transverse and a less distinct longitudinal impressed line present. Mesonotum nearly five times the length of the pronotum, regularly but slightly expanding caudad. Metanotum about equal to the mesonotum in length, subequal in width except for a very slight caudal expansion; median segment about a third as long as the remainder of the metanotum, and in its own length nearly twice its width. Abdomen with the proximal seven segments distinctly longitudinal and increasing in length from the first to the sixth, the seventh being shorter than the sixth and about equal to the first; eighth and ninth segments subequal, each hardly two-thirds the length of the seventh, fifth to eighth segments tectate, ninth tectate and carinate dorsad; supra-anal plate very small, trigonal; cerci simple, styliform, about two and a half times the length of the supra-anal plate; subgenital operculc strongly compressed, the lateral surfaces con-

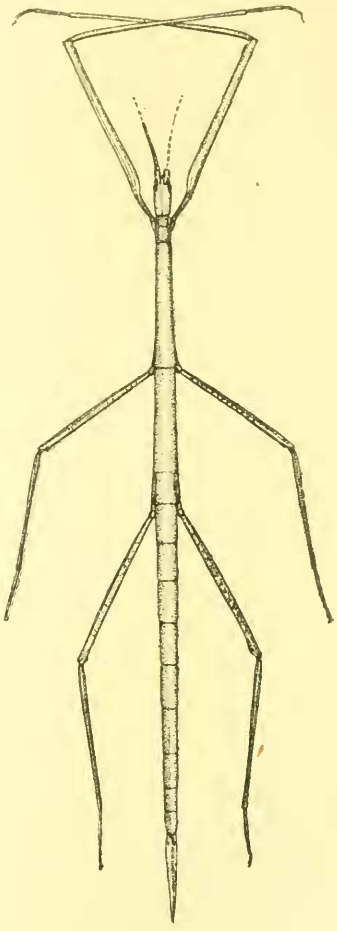

Fig. 5.—*Steleoxiphus catastates* n. gen. and sp. Dorsal view of type. Natural size.

[8] Καταστατης, *an establisher.*

Fig. 6.—*Steleoxiphus catastates* n. gen. and sp. Lateral view of apex of abdomen of type. (× 2.)

cave, apex acute, surface finely marked with longitudinal linear series of minute punctures. Cephalic femora equal to the length of mesonotum and half of the metanotum, proximal flexure distinct but small, remainder of the femur multicarinate; cephalic tibiæ slightly shorter than the femora; cephalic tarsi with the metatarsus distinctly longer than the remaining joints. Median femora about equal to the metanotum in length; median tibiæ somewhat shorter than the femora; median tarsi with the metatarsus very slightly shorter than the remaining tarsal joints. Caudal femora extending to the middle of the fifth abdominal segment; tibiæ distinctly but not very greatly shorter than the femora; tarsi with the metatarsus about equal to the remaining tarsal joints.

General color apple green, becoming oil green on the limbs and touched with ochraceous on the ventral section of the head, and also on the prosternum, cephalic and caudal sections of the mesosternum and cephalic section of the metasternum and a narrow ventral median line on the abdomen is of the same color. The subgenital opercule and cephalic tarsi are chiefly pale ochraceous, while the ochraceous on the caudal section of the mesosternum is overlaid with a brownish spot. Eyes vinaceous-cinnamon, antennæ ochraceous.

Measurements.

Length of body,	97	mm.
Length of antenna,	+ 8.1	"
Length of pronotum,	3.2	"
Length of mesonotum,	17.2	"
Length of metanotum (including median segment),	18	"
Length of median segment,	4.5	"
Length of abdomen,	42.5	"
Length of subgenital opercule,	24.5	"
Length of cephalic femur,	26	"
Length of median femur,	17.8	"
Length of caudal femur,	22	"

The type is unique.

There is a possibility that this species is the female of *Paraleptynia fosteri* Caudell, known only from the male, but it does not appear right or proper to assume that such strikingly different antennal characters exist in the sexes of the same species. The possibility exists, however,

and it remains for further collections and observations to accurately establish the true relationship of the two forms.

PSEUDOPHASMINÆ.

OLCYPHIDES Griffini.

***Olcyphides fasciatus** Gray.

1835. *P[hasma] fasciatum* Gray, Synop. Spec. Ins. Fam. Phasm., p. 24. [Brazil.]

1 ♀. December, 1904.

This specimen answers the description of the species quite well. As no measurements were given in the original description the following may be of interest:

Length of body,	71	mm.
Length of antenna,	68	"
Length of pronotum,	4	"
Length of mesonotum,	7.2	"
Length of tegmen,	5	"
Length of wing,	44.5	"

***Olcyphides hopii** (Gray).

1835. *P[hasma] Hopii* Gray, Synop. Spec. Ins. Fam. Phasm., p. 25. [Brazil.]

1 ♂. February, 1902.

Whether this specimen is the other sex of the species here called *fasciatus* or distinct cannot be positively determined from the material in hand. It agrees quite well with the brief description of *hopii*, and differs from *fasciatus*, as here understood, in having a much smaller tegminal protuberance, lateral lines of yellowish present on the thorax and distinctly though narrowly annulate antennæ. Whether these are specific or sexual characters remains to be determined.

ACRIDIDÆ.

ACRYDIINÆ.

TETTIGIDEA Scudder.

Tettigidea multicostata Bolivar.

1887. *T[ettigidea] multicostata* Bolivar, Ann. Soc. Entom. Belg., XXXI, p. 299. [Brazil.]

9 ♀. February and March, 1905.

This series has been compared with representatives from Caiza, Bolivia, Salta and Tucuman, Argentina.

PROSCOPIINÆ.

CEPHALOCŒMA Serville.

Cephalocœma oostulata Burmeister.

11 ♂, 13 ♀. November, 1901; February and March, 1905.

The variation in size exhibited by this series, in addition to the slight variation in the comparative length of the rostrum, would at first sight appear to be due to the presence of two or more species. However, no line of demarcation in size or in the number of tibial spines, the latter extremely variable in individuals, can be recognized, and for the present at least all are considered *costulata*. The strength of the abdominal strigæ is another character of variability in this material, and two of the female specimens appear to be what Bruner has provisionally called *burmeisteri*.[9]

ACRIDINÆ.

The material belonging to this subfamily has been studied in two previous papers,[10] the species being merely listed here, with any comments brought out by an examination of determinations in Prof. Bruner's later paper (*vide antea*).

HYALOPTERYX Charpentier.

Hyalopteryx rufipennis Charpentier.

Bruner has described as *H. specularis*[11] the form referred by the author to Charpentier's species.

EUTRYXALIS Bruner.

***Eutryxalis gracilis** (Giglio-Tos).

TRUXALIS Fabricius.

Truxalis brevicornis (Linnæus).

ORPHULA Stål.

Orphula pagana (Stål).

AMBLYTROPIDIA Stål.

Amblytropidia robusta Bruner.

The specimens referred with some little doubt to *A. ferruginosa* Stål by the author belong to Bruner's recently described species.

***Amblytropidia chapadensis** Rehn.

ORPHULINA Giglio-Tos.

Orphulina pulchella Giglio-Tos.

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[9] *Proc. U. S. Nat. Mus.*, XXX, p. 619.

[10] Notes on South American Grasshoppers of the Subfamily Acridinæ (Acrididæ), with Descriptions of New Genera and Species. *Proc. U. S. Nat. Mus.*, XXX, pp. 371–391. May, 1906. Studies in South and Central American Acridinæ (Orthoptera), with the Descriptions of a New Genus and Six New Species. *Proc. Acad. Nat. Sci. Phila.*, 1906, pp. 10–50. May 19, 1906.

[11] Bruner's *H. lamellipes* from Sao Paulo, Brazil, in all probability equals *H. asinus* Rehn.

ORPHULELLA Giglio-Tos.

***Orphulella gracilis** Giglio-Tos.

Orphulella punctata (De Geer).

DICHROMORPHA Morse.

Dichromorpha australis Bruner.

1900. *D[ichromorpha] australis* Bruner, Acc. Gen. Spec Locusts Argent., p. 28. [Carcarañia, Argentina.]

1 ♂, 1 ♀. February, 1901.

TOXOPTERUS Bolivar.

Toxopterus miniatus Bolivar.

FENESTRA Giglio-Tos.

Fenestra bohlsii Giglio-Tos.

AMBLYSCAPHEUS Bruner.

Amblyscapheus glaucipes (Rehn).

Staurorhectus glaucipes Rehn, Proc. Acad. Nat. Sci. Phila., 1906, p. 34, figs. 9 and 10. May 19, 1906.

Amblyscapheus lineatus Bruner, Proc. U. S. Nat. Mus., XXX, p. 633. June, 1906.[12]

The relationship of these two descriptions is obvious.

STAURORHECTUS Giglio-Tos.

Staurorhectus longicornis Giglio-Tos.

ISONYX Rehn.

***Isonyx paraguayensis** Rehn.

EUPLECTROTETTIX Bruner.

Euplectrotettix ferrugineus Bruner.

SCYLLINA Stål.

***Scyllina brunneri** (Giglio-Tos).

Scyllina brasiliensis (Bruner).

Scyllina conspersa (Bruner).

Scyllina varipes (Bruner).

ŒDIPODIN.E.

CŒLOPTERNA Stål.

1873. *Cœlopterna* Stål, Öfvers. af K. Vetensk.-Akad. Förhandlingar, XXX, No. 4, p. 53.

Type.—*Acrydium acuminatum* De Geer.

[12] Received in Philadelphia, June 6; probable exact date one or two days previous.

*Cœlopterna acuminata (De Geer).

1773. *Acrydium acuminatum* De Geer. Mém. l'Hist. Ins., III, p. 501, pl. XLII, fig. 10. [Surinam.]

1 ♂. January, 1903.

This peculiar species has been recorded from several localities in Paraguay. No comparison has been made with Surinam material.

PYRGOMORPHINÆ.

OSSA Giglio-Tos.

1894. *Ossa* Giglio-Tos, Bollett. Mus. Zool. Anat. Comp. Torino, IX, No. 184, p. 15, pl. fig. 2.

Type.—*O. bimaculata* Giglio-Tos.

Ossa bimaculata Giglio-Tos.

1894. *O[ssa] bimaculata* Giglio-Tos, Bollett. Mus. Zool. Anat. Comp. Torino, IX, No. 184, p. 15, pl. fig. 2. [Resistencia nel Chaco, Argentina.]

12 ♂, 12 ♀. December to March.

All of the female specimens are slightly, and some considerably, larger than the measurements of the type given by Giglio-Tos.

OMMEXECHA Serville.

1831. *Ommexecha* Serville, Ann. Sci. Nat., XXII, p. 285.

Type.—*O. virens* Serville.

***Ommexecha virens** Serville.

1831. *Ommexecha virens* Serville, Ann. Sci. Nat., XXII, p. 286. [Buenos Ayres.]

4 ♀. May, 1902.

One of these specimens is distinctly true *virens* as far as color is concerned, the others apparently being Blanchard's *O. servillei*, which probably is only a brown phase of *virens*. The only other conclusion that can be reached from the material before me is, that *servillei* has two color phases represented in this series, distinct, however, from *virens* which should be retained as a poorly understood form. This view does not appear as likely as the synonymy of *servillei* with *virens*. No structural characters separate the two color forms as far as available material goes, the strength of asperities and ridges in this genus being subject to considerable variation.

Bruner has recorded the brown phase from Asuncion and San Bernardino, Paraguay.

***Ommexecha germari** Burmeister.

1838. *O[mmexecha] Germari* Burmeister, Handb. d. Entom., bd. II, abth. II, pt. I, p. 655. [Brazil.]

9 ♂, 10 ♀. February and March, 1905; May, 1902.

This series exhibits some variation in size and length of the tegmina and wings, the two sexes sharing alike in the same.

This species has also been recorded from Porto Allegre (Karsch) and São Leopoldo (Bolivar), Rio Grande do Sul, Brazil.

LOCUSTINÆ.

PROCOLPIA Stål.

1873. *Procolpia* Stål, Öfv. K. Vetensk.-Akad. Förhandl., 1873, No. 4, p. 52.

Type.—*Xiphicera emarginata* Serville.

Procolpia minor Giglio-Tos.

1894. *P[rocolpia] minor* Giglio-Tos, Bollett. Mus. Zool. Anat. Comp. Torino, IX, No. 184, p. 17. [Colonia Risso, Rio Apa, Paraguay.]
1906. *Munatia australis* Bruner, Proc. U. S. Nat. Mus., XXX, p. 644. [Sapucay, Paraguay.]

8 ♂, 6 ♀. February and March, 1905.

On comparison of this series with the two descriptions cited above, it is very evident that both refer to the same species. While not absolutely typical *Procolpia* in the form of the apex of the tegmina, the species is certainly nearer *Procolpia emarginata* than *Munatia punctata*, the type of the latter genus. The form of the wing is distinctly that of *Procolpia*, and the apex of the tegmen in every specimen shows a slight oblique sutural truncation.

PRIONOLOPHA Stål.

1873. *Prionolopha* Stål, Recensio Orthopterorum, I, pp. 27, 44.

Type.—*Gryllus* (*Bulla*) *serratus* Linnæus.

Prionolopha serrata (Linnæus).

1758. [*Gryllus* (*Bulla*)] *serratus* Linnæus, Syst. Nat., X ed., p. 427. ["Indiis."]

10 ♂, 12 ♀. January to March, 1905.

These specimens exhibit some slight variation in size, and in the shade of the green base color and of the bars of the sides of the head and pronotum. The latter are in some cases greenish yellow, in others pinkish, and again dull purplish much darker than the base color.

ALCAMENES Stål.[13]

1878. *Alcamenes* Stål, Bihang till K. Svenska Vet.-Akad. Handlingar, V, No. 4, pp. 14, 54.

Type.—*A. granulatus* Stål.

[13] Giglio-Tos's *Prionolopha brevipennis* (*Bollett. Mus. Zool. Anat. Comp. Torino*, XV, No. 377, p. 3) appears to be a member of this genus.

Alcamenes cristatus Bruner.

1906. *Alcamenes cristatus* Bruner, Proc. U. S. Nat. Mus., XXX, p. 650. [Sapucay, Paraguay.]

2 ♂, 5 ♀. February and March, 1905.

As suggested by Bruner (*supra*, pp. 650–651) the genus *Alcamenes* is closely related to *Prionolopha*, undoubtedly closer than it is to the genus *Tropinotus*.

TROPINOTUS Serville.

1831. *Tropinotus* Serville, Ann. Sci. Nat., XXII, p. 272.

Included *Gryllus serratus* Fabr., *T. discoideus* and *obsoletus* Serville. The first was removed to *Prionolopha* in 1873, the third to *Colpolopha* the same year, and *discoideus* can be considered the type.

Tropinotus discoideus Serville.

1831. *Tropinotus discoideus* Serville, Ann. Sci. Nat., XXII, p. 273. [Brazil.]

11 ♂, 12 ♀. February and March, 1905.

This series contains a few specimens which have the lateral portions of the disk of the pronotum, the dorsum of the head and the anal field of the tegmina bright green. The maculations of the tegmina are subject to a great amount of variation and in a few specimens are almost absent, but in the great majority are distinct though faint.

The presence or absence of the lateral apical spine on the caudal tibiæ appears to be of little or no value to separate genera in this group, as it is not constantly present in the same species, and even may be present on one limb and absent on the other of the same individual. Representatives of this species present this latter condition.

***Tropinotus guarani** n. sp.

Types: ♂ and ♀; Sapucay, Paraguay. February 25 (♂), March 9, 1905 (♀). (William Foster.) [Hebard Collection.]

Allied to *T. regularis* Bruner, but differing in the heavier build, the less evenly arched pronotal crest, the broader disk of the pronotum, the slightly heavier limbs, shorter tegmina and the less regularly maculate character of the same.

Size medium; form robust; surface of body rugulose. Head with the occiput distinctly inflated, a distinct median carina continuing cephalad to the angle of the fastigium, this being accompanied by lateral carinæ lower and indefinite in character but constricted at the highest point of the swell of the occiput, and connected with the median carina by numerous low transverse ridges producing a scalari-

form pattern; interspace between the eyes no narrower than the fastigium; fastigium slightly acute-angulate in the male, rectangulate in the female, the width being nearly that of the eye, between the points of greatest width the fastigium is bounded caudad by a low transverse carina, hardly indicated in the male, cephalad of which the disk is slightly excavate; when viewed laterad the angle of the fastigium is slightly rounded into the facial outline which is distinctly but not greatly retreating; frontal costa very narrow dorsad, much more so

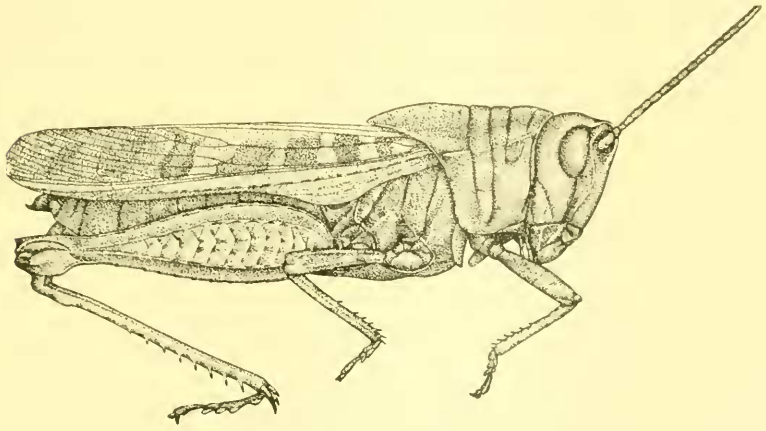
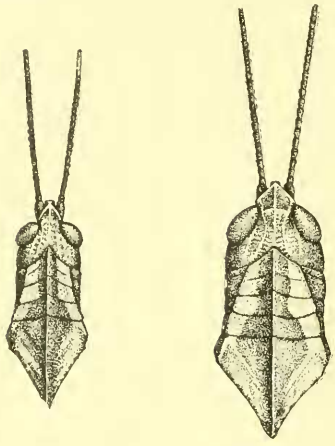


Fig. 7.—*Tropinotus guarani* n. sp. Lateral view of female type. (× 2.)

comparatively in the female than in the male, from whence it regularly but gradually expands except for a short subequal portion in the vicinity of the ocellus, in the male the costa is punctate but not sulcate, in the female it is sulcate for a moderate distance dorsad and ventrad of the ocellus, punctate elsewhere; eyes subovate, somewhat prominent in the male when viewed dorsad, in length distinctly (♂) or slightly (♀) longer than the infraocular sulcus; antennæ in length slightly exceeding the pronotum in both sexes, slightly depressed proximad. Pronotum with the greatest width contained slightly less than twice (♂) or once and two-thirds (♀) in the length of the same; cephalic margin slightly acute-angulate (♂) or rectangulate (♀), the margins slightly concave laterad; caudal margin acute-angulate in both sexes but sharper in the male than in the female and with the lateral portions concave; dorsal crest moderately high, the greatest height being on the metazona which is arcuate somewhat independent of the prozona and in the male being higher comparatively and more arcuate than in the

female, the prozonal portion increasing in height caudad but slightly sinuate in the female, transverse sulci moderately impressed, the caudal one distinctly sunken into the sides of the crest, prozona somewhat shorter than the metazona; lateral carinæ sharp, slightly lamellate caudad, cut by three sulci; lateral lobes with the dorsal length slightly greater than the depth; almost the entire surface of the pronotum is punctate, usually strongly so, and the metazona of the disk, particularly in the male, bears papilliform tubercles. Tegmina slightly over twice the length of the pronotum, rather broad proportionately, costal margin with a very considerable proximal lobe, the proximo-distal length of which is not great in proportion to the depth; apex narrowed somewhat, obliquely rotundato-truncate. Prosternal spine compressed, apex narrowed and directed caudad as usual in the genus; interspace between the mesosternal lobes distinctly longer than broad in the male, subquadrate in the female; interspace between the metasternal lobes small and subquadrate in the male, transverse in the female. Abdomen with the dorsal segments rugoso-punctate. Cephalic and median limbs rather short, the femora of the male, particularly the cephalic, distinctly inflated. Caudal femora robust, the distal portion, however, comparatively slender when the robust proximal two-thirds is considered, the femoral length being about three-fourths that of the tegmina and the greatest width is contained nearly four times in the length, dorsal, ventral and lateral carinæ serrate, particularly the dorsal, paginæ with the pattern very distinctly imbricate, the appearance being that of overlapping plates, the shape being also variable and seldom the usual Acridoid chevron; caudal tibiæ very slightly shorter than the femora, very slightly sinuate, lateral margins with nine to ten spines, internal margins with ten spines.



Figs. 8 and 9.—*Tropinotus guarani* n. sp. Dorsal view of head and pronotum of male and female types. (× 2.)

General color bistre mingled and blended with vinaceous-cinnamon in a pattern which presents but few sharply defined contrasts of the two colors. Dorsum of the pronotum in the female margined laterad by

a subequal band of bice green, on the metazona, however, this border becomes fainter caudad until it is not apparent, the median section of the pronotum is almost clove brown. Anal field and a portion of the adjoining discoidal field bice green, absent, however, in the distal fourth; pattern of the tegmina formed by five distinct and two or more faintly indicated transverse bars of bistre, the pale bars distad and none encroaching on the costal field or the green dorsal section. Wings with the disk carmine. Ventro-lateral carinæ of the caudal femora with regularly spaced dark blotches, the dorso-lateral face quite dark; caudal tibiæ wood brown in the male, of the same color but strongly sprinkled with bistre in the female.

Measurements.

	♂	♀
Length of body,	27.5 mm.	38.8 mm.
Length of pronotum,	10.7 "	12.5 "
Greatest dorsal width of pronotum,	5.5 "	7 "
Length of tegmen,	23 "	29 "
Greatest width of tegmen,	4.5 "	6 "
Length of caudal femur,	17.2 "	21.4 "

A series of three topotypic females have been examined in addition to the types. In size these individuals vary somewhat, one being slightly larger than the type, the others of about the same size with slightly shorter tegmina. In color the variation is chiefly in individual variation in shades of brown, the pattern remaining much the same, the green areas being brown as in the male in two of the three specimens. The caudal tibiæ are light in two and dark in one of the paratypic specimens examined.

Tropinotus regularis Bruner.

1905. *Tropinotus regularis* Bruner, Ent. News, XVI, p. 214. [Sapucay, Paraguay.]

7 ♂, 13 ♀. February and March, 1905.

This series exhibits considerable variation in the size and intensity of the tegminal blotches. The phase with green on the lateral portions of the disk of the pronotum and on the anal and contiguous portion of the discoidal field of the tegmina as described by Bruner,[14] is represented by five females.

Tropinotus lævipes Stål.

1878. *T[rapidonotus] lævipes* Stål, Bihang till K. Svenska Vet.-Akad. Handl., V, No. 9, p. 20. [São Leopoldo, Brazil; Argentine Republic.]

[14] *Proc. U. S. Nat. Mus.*, XXX, p. 647.

10 ♂, 7 ♀. December, 1904, to February, 1905.

This series shows some slight variation in size in the male sex.

Tropinotus lineatus Bruner.

1906. *Tropinotus lineatus* Bruner, Proc. U. S. Nat. Mus., XXX, p. 648. [Sapucay, Paraguay.]

2 ♂, 2 ♀. February and March, 1905.

Three of these specimens are in the brown phase, while one female is colored with green as mentioned in the original description. In the latter specimen the characteristic longitudinal pale bar is light green, and not yellowish as in the other individuals.

ELÆOCHLORA Stål.

1873. *Elæochlora* Stål, Öfv. K. Vetensk.-Akad. Förhandlingar, 1873, No. 4, p. 52.

Type.—*Gryllus scaber* Thunberg.

Elæochlora viridicata (Serville).

1839. *Xiphicera viridicata* Serville, Orthoptères, p. 614. [Buenos Ayres.]

9 ♂, 4 ♀. December, 1904; February and March, 1905.

These specimens are not typical of *viridicata*, but are not strongly enough differentiated to warrant separation. When compared with Buenos Ayres and Carcaraña, Argentina material the Sapucay males are seen to have distinctly shorter tegmina and wings, while the females have these organs slightly shorter. The Sapucay males range from 19.5 to 26 millimeters in the length of the tegmina, while two Argentina males measure 32.5 and 34 millimeters.

CHROMACRIS Walker.

***Chromacris stolli** (Pictet and Saussure).

1887. *R[homalea] Stolli* Pictet and Saussure, Mittheil. Schw. Ent. Gesell., VII, p. 351. [Bahia, Brazil.]

9 ♂, 10 ♀. December, 1904; January to March, 1905.

These specimens are clearly *stolli* and show no important differences from Argentina material of the species. When compared with British Guianan specimens of *C. miles* the Sapucay material is seen to be distinct.

ZONIOPODA Stål.

1873. *Zoniopoda* Stål, Recensio Orthopterorum, I, pp. 32, 51.

Included *Z. tarsata* (Serville) and *emarginata* Stål, of which the first may be considered the type.

Zoniopoda iheringi (Pictet and Saussure).

1887. *Z[oniopoda] Iheringi* Pictet and Saussure, Mittheil. Schw. Ent. Gesell., VII, p. 357. [Southern Brazil.]

12 ♂, 10 ♀. December, 1904; February and March, 1905.

This series is quite uniform in size and color, the only appreciable variation being in the color of the antennæ and of the caudal tibiæ. The antennæ are uniform ochraceous in some individuals, of the same color slightly washed proximad with umber, there narrowly annulate with paler in others and also uniform umber annulate through the length but more distinctly so proximad. The color of the eyes vary from ochraceous to deep walnut brown. The caudal tibiæ are strongly purplish-pink in some specimens, in others whitish and numerous specimens are lightly washed with pinkish.

The typical specimen from Rio Grande do Sul mentioned in a previous paper[15] has the median carina of the pronotum more elevated than the Sapucay specimens.

Zoniopoda similis Bruner.

1906. *Zoniopoda similis* Bruner, Proc. U. S. Nat. Mus., XXX, p. 652. [Sapucay, Paraguay.]

9 ♂, 4 ♀. February and March, 1905.

These specimens are quite uniform in size and coloration, in a few the yellowish tint being more pronounced than in others. The carmine caudal tarsi are quite striking.

Zoniopoda cruentata (Blanchard).

1846.[16] *Acridium cruentatum* Blanchard, in D'Orbigny, Voy. dans l'Amer. Merid., VI, pt. II, p. 216, pl. XXVII, fig. 5. [No locality.]
1900. *Z[oniopoda] tarsata* Bruner, Acc. Gen. Spec. Locusts Argent., p. 61, fig. 26. (Not of Serville.)
1906. *Zoniopoda tarsata* Bruner, Proc. U. S. Nat. Mus., XXX, p. 652, pl. XXXVII, fig. 2. (Not of Serville.)

10 ♂, 9 ♀. January to March, 1905.

This species, which has been confused with Serville's *tarsata* from Brazil, differs from the latter in having less red on the head, the entire portion of the latter caudad of the interocular region being red in *tarsata*, in having the clypeus, labrum and mandibles light in color instead of solid black as in *tarsata*, the cephalic and median limbs variegated with yellow, red and olive-green instead of red, orange and black or blackish, and the proximal dark bar on the caudal femora weak and diffuse instead of solid and clearly defined on the dorsal half of the limb.

Two females of this series have the caudal femora with very weak dark maculations and annulations, the actual color of them being oil green, while the blackish genicular maculations are as distinct as in the other specimens. In some individuals the second joint

[15] *Ent. News*, XVI, p. 38.
[16] *Vide* Sherborn, *Ann. Mag. Nat. Hist.*, 7th ser., VII, p. 389.

of the caudal tarsi is hardly darker than the other tarsal joints, the tarsi then appearing almost uniform carmine. The eyes vary from ochraceous to seal brown in color.

Zoniopoda omnicolor (Blanchard).

1846.[16] *Acridium omnicolor* Blanchard, in D'Orbigny, Voy. dans l'Amer. Merid., VI, pt. II, p. 216, pl. XXVII, fig. 3. [No locality.]

10 ♂, 9 ♀. December, 1904, to March, 1905.

This series exhibits considerable variation in size, the males ranging in length of body from 29 to 37 millimeters, the females from 44 to 52.

Zoniopoda exilipes Bruner.

1906. *Zoniopoda exilipes* Bruner, Proc. U. S. Nat. Mus., XXX, p. 654. [Sapucay, Paraguay.]

10 ♂, 8 ♀. February and March, 1905.

This series is quite constant in size and color. The large yellow lateral sections of the subgenital plate are very conspicuous, the color there being the same as on the head and more yellowish than on the limbs and pronotum.

PRIONACRIS Stål.

1878. *Prionacris* Stål, Bihang till K. Svenska Vet.-Akad. Handlingar, V, No. 4, pp. 19, 55.

Type.—*P. compressa* Stål.

***Prionacris erosa** n. sp.

Type: ♂; Sapucay, Paraguay. March 15, 1906. (William Foster.) [Hebard Collection.]

Allied to *P. compressa* from New Grenada, but of different proportions and with the wings colored differently.

Size moderately large; form elongate; surface of thorax rugulosopunctate, of head smooth or finely punctulate. Head broad, the length distinctly less than the width, the breadth across the eyes being almost twice the length; occiput rounded, but little elevated dorsad of the eyes, gently declivent to the fastigium, smooth, the width between the eyes but little less than the length of the eye; fastigium rectangulate, not broader than the space between the eyes, margins not at all carinate, disk slightly depressed transversely, a longitudinal median depression marked only at the immediate apex, when viewed laterad the frontal costa rounds into the facial outline which is slightly arcuate; frontal costa very broad, defined by distinct lateral margins only in the dorsal half, the ventral section being also somewhat narrower than the dorsal, not

[16] *Vide* Sherborn, *Ann. Mag. Nat. Hist.*, 7th ser., VII, p. 389.

sulcate, but strongly punctulate as is the whole facial region; eyes ovate, quite prominent when viewed dorsad; antennæ slightly longer than the head and pronotum together, slender. Pronotum with the length about equal to the vertical depth of the head; the caudal width

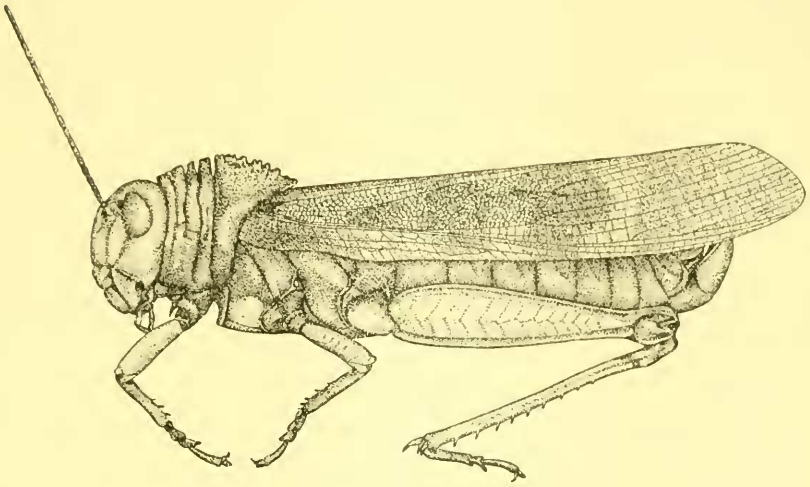


Fig. 10.—*Prionacris erosa* n. sp. Lateral view of type. (× 2.)

of the disk contained about one and one-half times in the length of the same; cephalic margin obtuse-angulate, caudal margin slightly acute-angulate, the immediate apex sharp; median carina moderately arcuate in general outline, dentato-serrate, particularly on the metazona, the principal sulcus and the prozonal sulci deeply cutting the crest into three parts on the prozona; principal transverse sulci three in number, the disk rounding into the lateral lobes on the prozona, a distinct but well rounded shoulder present on the metazona; lateral lobes with the dorsal length about equal to the depth, the cephalic and caudal margins subparallel for more than half their length, ventral margin truncate caudad, slightly oblique cephalad. Tegmina about two and two-thirds times the length of the head and pronotum together, exceeding the apex of the abdomen by slightly less than the length of the pronotum, the greatest width being two-thirds the distance from the base; costal margin with a slight proximal lobe and arcuate in the distal third, sutural margin

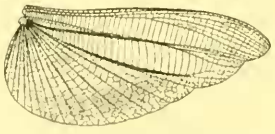


Fig. 11.—*Prionacris erosa* n. sp. Wing of type. Natural size.

nearly straight, apex distinctly oblique truncate, the immediate apex narrowly rounded; mediastine vein strong, nearly straight; anterior ulnar vein sinuate, after bending ventrad from the posterior ulnar vein it recurves and continues closely parallel to the same; intercalary area broad and filled with a network of irregularly meshlike nervures. Wings elongate, narrow, apex rounded acute-angulate; discoidal vein with two rami, the proximal diverging before the middle, the distal separating near the distal third, the proximal furcate; ulnar field occupied by a closely placed scalariform pattern of parallel transverse veins numbering about forty-five, those in the narrow proximal section being very closely placed, while the distal section is occupied by the regular vein pattern; anal vein distinctly sinuate a short distance distad of the middle; anterior axillary field narrow, veined much as the ulnar field and bent under the inflated posterior axillary field, the latter broad, with a scalariform pattern of about thirty veins, as a rule more spaced than in the ulnar field, the vein bounding this area caudad being very much thickened and slightly arcuate. Abdomen subcylindrical, subgenital plate conical, somewhat compressed, slightly carinate ventrad; cerci small, styliform, the apex slightly bent ventrad; supra-anal plate slightly compressed, the median depression subfusiform with margins high, apex acute. Prosternal spine strongly compressed, blunt, directed slightly cephalad; interspace between the mesosternal lobes distinctly longitudinal, narrower than one of the lobes; interspace between the metasternal lobes much smaller, subquadrate; the whole of the sternal region slightly but distinctly concave. Cephalic and median limbs very short, robust; caudal femora slightly more than half the length of the tegmina, thick and with the pregenicular constriction but little marked, greatest width contained nearly five times in the length, carinæ low and hardly marked, paginæ with the pattern very slightly sculptured and with little resemblance to the typical Acridoid chevrons; caudal tibiæ very slightly shorter than the femora, very slightly sinuate, lateral margins with ten spines one of which is apical, internal margins with eleven spines, internal spurs moderately long, subequal, the whole of the dorsal surface of the tibiæ clothed with long white pile; caudal tarsi quite elongate.

General color mummy brown, mingled and sometimes contrasted with wood brown. Head wood brown laterad, washed with russet dorsad and with a narrow median bluish line, face of the general color, eyes burnt umber; antennæ dragon's blood red proximad, brick red distad. Pronotum with the margin of the crest and portions of the ventral section of the lateral lobes touched with bistre. Tegmina with four

poorly defined transverse light bars on the proximal two-thirds, distal third hyaline, the longitudinal veins dark and the transverse and adventitious veins pale. Wings with the disk malachite green bordered toward the periphery by an arch of bistre which touches none of the margins; anterior field hyaline with the veins dark. Caudal femora with a touch of clay-color on the dorsal and ventral faces, laterad somewhat hoary, genicular arch blackish, the remainder of the genicular region burnt sienna; caudal tibiæ crimson, faint laterad and touched with blackish on the genicular section, particularly on the internal face, spines and spurs tipped with black; caudal tarsi washed with crimson.

Measurements.

Length of body,	41	mm.
Breadth of head across eyes,	7.8	"
Breadth immediately ventrad of eyes,	6.8	"
Length of pronotum,	9.2	"
Greatest caudal width of disk of pronotum,	5.5	"
Length of tegmen,	37	"
Greatest width of tegmen,	7	"
Length of caudal femur,	19.5	"

The type is unique.

DIPONTHUS Stål.

1860. *Diponthus* Stål, Kongl. Svenska Fregat. Eugenies Resa, Ins., p. 328.

Included *Acridium nigro-conspersum* Stål and *Acridium electum* Serville, of which the first may be considered the type.

Diponthus paraguayensis Bruner.

1906. *Diponthus paraguayensis* Bruner, Proc. U. S. Nat. Mus., XXX, p. 657. [Sapucay, Paraguay.]

9 ♂, 11 ♀. December, 1902 and 1904; January, 1903; February and March, 1905.

This series shows that considerable variation is present in the intensity of the base color of the body and limbs, this being rather warm brown in some and decidedly olive green in others. The femoral bars are less distinct in some specimens than in others, due in the poorly contrasted specimens to a suffusion of the light bars with olive green. One specimen is washed with rosy red, a condition previously noted in species of this genus by Pictet and Saussure.

LEPTYSMA Stål.

1873. *Leptysma* Stål, Recensio Orthopterorum, I, pp. 42, 85.

Included *L. filiformis* (Serv.), *obscura* (Thunberg) and *marginicollis* (Serv.), of which the first may be considered the type.

*Leptysma filiformis (Serville).

1839. *Opsomala filiformis* Serville, Orthoptères, p. 593. [North of the State of São Paulo, Brazil.]

5 ♀. February and March, 1905.

One of these specimens is decidedly rosy.

Leptysma obscura (Thunberg).

1827. *Tr[uxalis] obscurus* Thunberg, Nova Act. Reg. Soc. Scient. Upsal., IX, p. 79. [Brazil.]

3 ♂, 4 ♀. January, 1903; February and March, 1905.

The comparatively shorter head of this species readily separates it from the preceding species, which also has the caudal section of the head somewhat inflated when viewed laterad.

STENACRIS Walker.

Stenacris coccineipes (Bruner).

1906. *Arnilia coccineipes* Bruner, Proc. U. S. Nat. Mus., XXX, p. 659. [San Bernardino, Asuncion and Sapucay, Paraguay; Victoria, Brazil.]

1 ♂. March, 1905.

This specimen has the caudal tibiæ uniform red as in the type, but rather pale in color.

OXYBLEPTELLA Giglio-Tos.

1894. *Oxybleptella* Giglio-Tos, Boll. Mus. Zool. Anat. Comp. Torino, IX, No. 184, p. 33.

Type.—*O. sagitta* Giglio-Tos.

*Oxybleptella sagitta Giglio-Tos.

1894. *Oxybleptella sagitta* Giglio-Tos, Boll. Mus. Zool. Anat. Comp. Torino, IX, No. 184, p. 33. [Villa Rica, Paraguay.]

4 ♂, 5 ♀. March, 1905.

These specimens show a slight variation in size in the female sex.

STENOPOLA Stål.

1873. *Stenopola* Stål, Recensio Orthopterorum, I, pp. 42, 83.

Type.—*Stenopola dorsalis* (Thunberg).

Stenopola bohlsii Giglio-Tos.

1895. *S[tenopola] bohlsii* Giglio-Tos, Zoolog. Jahrbücher, Abth. Syst., VIII, p. 813. [Paraguay.]

11 ♂, 7 ♀. February and March, 1905.

This series is quite constant in coloration.

ADIMANTUS Stål.

1878. *Adimantus* Stål, Bihang till K. Svenska Vet.-Akad. Handlingar, V, No. 4, p. 38.

Type.—*Oxya ornatissima* Burmeister.

Adimantus vitticeps (Blanchard).

1846. *Acridium vitticeps* Blanchard, in D'Orbigny, Voy. l'Amer. Merid., VI, pt. II, p. 216, pl. XXVII, fig. 4. [No locality cited.]

3 ♂, 4 ♀. March, 1905.

This series shows considerable variation in the suffusion of vermilion on the cephalic and median limbs, and also in the extent and intensity of the same color on the caudal tibiæ, one specimen having these in the greater part greenish and bluish black. In all the specimens the caudal tibiæ bear two median, more or less complete, annuli of bluish or bluish black.

Burmeister's *Oxya ornatissima* is probably distinct from this species, having, according to the original description, blue wings.

ZYGOCLISTRON Rehn.

1905. *Zygoclistron* Rehn, Entom. News, XVI, p. 39.

Type.—*Z. trachystictum* Rehn.

Zygoclistron trachystictum Rehn.

1905. *Zygoclistron trachystictum* Rehn, Entom. News, XVI, p. 39, figs. 1, 2 and 3. [Sapucay, Paraguay.]

12 ♂, 9 ♀. January to March, 1905.

This series shows that while color variation in the species is slight, the female sex exhibits a considerable amount of individual variation in size, the smallest measuring 10.2, 19 and 20.5 millimeters in the length of the pronotum, tegmen and caudal femur respectively, the largest having these parts 12.5, 21.5 and 24.5.

***Zygoclistron superbum** n. sp.

Types: ♂ and ♀; Sapucay, Paraguay. December 16, 1904 (♀), March 5, 1905 (♂). (William Foster.) [Hebard Collection.]

Allied to *Z. trachystictum* but differing in the more produced, more acute and more excavate fastigium, the less regularly divergent margins of the frontal costa, the more ovate eyes, the longer tegmina and wings (particularly in the female) and in the presence of maculations on the dorsum of the pronotum.

Size rather large; form moderately elongate; surface of head and abdomen smooth, of thorax rugulose. Head with the occiput not elevated to the level of the disk of the pronotum, slightly rounded and gently declivent to the fastigium, interocular region slightly narrower than the width of the eye in the male and equal to two-thirds the length of the eye in the female; fastigium with the apical margin slightly acute-angulate in both sexes, the immediate apex sharply defined, disk of the fastigium broader proportionately and less defined in the female than in the male, distinctly but not greatly excavate in the male, hardly so in

the female; position of the lateral foveolæ filled with irregularly vertical rugæ in both sexes; frontal costa represented for a short distance dorsad merely by a high carinate ridge, which, however, distinctly expands with distinct lateral carinæ and a distinctly depressed median area, between them the margins in the male are regularly but not strongly expanded to the ocellus, immediately ventrad of which they are sharply constricted but return to their regular trend, in the female they expand more broadly dorsad and in continuing ventrad they

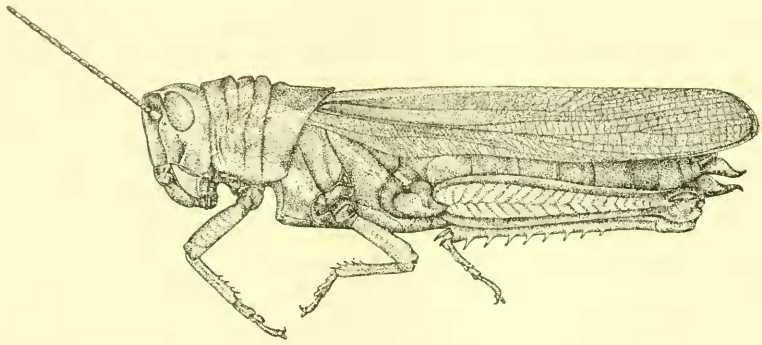


Fig. 12.—*Zygoclistron superbum* n. sp. Lateral view of female type. (× 1½.)

separate but little more and have no appreciable constriction; eyes ovoid, slightly narrower dorsad, in the male the eyes are moderately prominent when viewed dorsad and in length they are distinctly longer (♂) or subequal to (♀) the infraocular sulcus; antennæ subequal to (♀) or slightly more than half as long again as (♂) the head and pronotum together, slightly depressed proximad. Pronotum moderately tectate and slightly inflated on the prozona, flattened except for the median carina on the metazona; cephalic margin broadly obtuse-angulate, the immediate apex blunt; caudal margin obtuse-angulate, the apex blunt and the margins slightly sinuate laterad; greatest caudal width of the disk contained one and a half times in the length; median carina prominent, slightly arcuate on the prozona and divided into three parts by transverse sulci, the cephalic part longer than the others, on the metazona the carina is slightly elevated cephalad decreasing in height caudad; prozona without distinct lateral shoulders, metazona with definite but well-rounded shoulders; lateral lobes considerably longer dorsad than deep, ventral margin obtuse-angulate, the angle slightly caudad of the middle. Tegmina somewhat exceeding the apex of the abdomen in the male, subequal in the female; costal

margin with a very slight proximal dilation, the distal third slightly rounded off, apex oblique rotundato-truncate; area between the median and discoidal veins in the middle of the tegmen supplied with ten to twelve transverse regularly placed veins arranged in a scalariform pattern, this feature being present in both sexes but larger and stronger in the male. Prosternal process slightly bent caudad, slightly inflated distad, rounded, slightly compressed; interspace between the mesosternal lobes extremely narrow, the lobes almost attingent in the male, in shape clepsydral; interspace between the metasternal lobes as wide as the mesosternal interspace in the male, considerably wider and sub-cuneiform in the female. Abdomen slightly compressed; furcula of the male present as very short and broad rounded lobes; supra-anal plate of the male broad and subequal in the proximal two-thirds, distad of this the margins are roundly incurved and then produced into the acute apex, median portion elevated, the proximal section with an enclosed longitudinal rectangulate area, the distal section with a pair of converging carinæ; cerci elongate, slender, bent falciform in a horizontal plane, the distal half moderately tapering, the median section slender, apex slightly depressed and with the tip sharp and slightly outcurved; subgenital plate compressed, the apex hooked, elevated and lamellate. Cephalic and median limbs short and robust, particularly in the male. Caudal femora hardly robust, the greatest width contained five times in the length which is equal to twice (♀) or slightly more than twice (♂) the length of the pronotum, the outline of the femora tapering slightly but regularly from the proximal third to the moderately inflated genicular region, carinæ distinct but not high, smooth, paginæ with the pattern distinct, chevrons moderately regular; caudal tibiæ about equal to the femora in length, lateral margins with eight to ten spines, internal margins with eleven to twelve spines.

General colors chromium green, bay and saffron yellow. Head with a broad irregular median longitudinal bar of dull yellow, margined laterad by bay; postocular regions green, genæ ventrad of the eyes obliquely yellow, the ventral margin touched with bay; face of the female bay, of the male faintly washed with the same and with a trace of a transverse yellowish bar; eyes cinnamon; antennæ wine purple. Pronotum bay with broad lateral yellow bars on the disk, these bars converging on the middle of the prozona and regularly diverging cephalad and caudad, the ventral margin of the lateral lobes also with a bar of yellow. Pleura greenish, the two pronotal bars on each side continued on them, the dorsal to the insertion of the caudal femur, the

ventral to the insertion of the median femur. Abdomen yellowish. Tegmina greenish, the anal area yellow, this color as is also that of the pronotal and pleural bars brighter in the male than in the female. Wings washed with orange red proximad. Limbs greenish brown, the carinæ and paginæ marked but not conspicuously with purplish, genicular arches of the caudal femora bay; caudal tibiæ pale vinaceous, in the female the internal face and the internal faces of the internal spines marked with purplish black, in the male the internal faces of the spines alone are marked, tips of all the spines of the same color.

Measurements.

	♂	♀
Length of body,	36.5 mm.	54 mm.
Length of pronotum,	7.5 "	11.2 "
Length of tegmen,	30.5 "	38.5 "
Length of caudal femur,	17.5 "	22.8 "

A paratypic series of three males and four females, taken on dates in December, 1904, January, February and March, 1905, have also been examined. One of the females possesses slightly longer tegmina and wings than the others, and in several of the females the frontal costa is slightly constricted ventrad of the sulcus, but otherwise no important structural variation is noticed. In color the variation noticed is chiefly in the depth of the bay color and the brilliancy of the yellow, the blackish on the internal face of the caudal tibiæ also varying slightly in extent and intensity, being weak in some females and distinctly marked in two of the males.

ALEUAS Stål.

1878. *Aleuas* Stål, Bihang till K. Svenska Vet.-Akad. Handlingar, V, No. 4, pp. 25, 69.

Included *A. vitticollis, gracilis* and *lineatus* Stål, of which the first may be considered the type.

Aleuas brachypterus Bruner.

1906. *Aleuas brachypterus* Bruner, Proc. U. S. Nat. Mus., XXX, p. 667. [Sapucay, Paraguay.]

3 ♀. March, 1905.

Aleuas gracilis Stål.

1878. *A[leuas] gracilis* Stål, Bihang till K. Svenska Vet.-Akad. Handlingar, V, No. 4, p. 70. [Brazil.]

10 ♂, 4 ♀. February and March, 1905.

The individuals I have considered as representing the females of this species are short-winged as in *A. brachypterus*, but smaller than that

species, with the fastigium more acute and the margins carinate, being in this respect a modified form of the structure of this portion in the male. The measurements of an average female are as follows: length of body, 45 mm.; length of pronotum, 10; length of tegmen, 10; length of caudal femur, 18.

PARALEUAS Giglio-Tos.

1898. *Paraleuas* Giglio-Tos, Bollett, Mus. Zool. Anat. Comp. Torino, XIII, No. 311, pp. 47, 57.

Type.—*P. bohlsii* Giglio-Tos.

Paraleuas fosteri Bruner.

1906. *Paraleuas fosteri* Bruner, Proc. U. S. Nat. Mus., XXX, p. 669. [Sapucay, Paraguay.]

1 ♂, 8 ♀. February and March, 1905.

These specimens vary considerably in color, the males being light yellow in the paler areas, the majority of the females dull gamboge on the same sections, while one has a very slight rather general pinkish-red suffusion.

JODACRIS Giglio-Tos.

1897. *Jodacris* Giglio-Tos, Bollett. Mus. Zool. Anat. Comp. Torino, XII, No. 302, p. 32.

Type.—*Anniceris ferrugineus* Giglio-Tos.

Jodacris ferruginea (Giglio-Tos).

1894. A[*nniceris*] *ferrugineus* Giglio-Tos, Bollett. Mus. Zool. Anat. Comp. Torino, IX, No. 184, p. 30. [Province of San Pedro, Villa Rica, Asuncion, Paraguay.]

3 ♀. March, 1905.

One of these specimens is slightly smaller than the others.

OMALOTETTIX Bruner.

1906. *Omalotettix* Bruner, Proc. U. S. Nat. Mus., XXX, pp. 642, 672.

Type.—*Jodacris*(?) *nebulosa* Bruner.

Omalotettix nebulosa (Bruner).

1900. *Jodacris*(?) *nebulosa* Bruner, Acc. Gen. Spec. Locusts Argentina, p. 67. [Asuncion, Paraguay; Province of Tucuman, Argentina.]

1 ♂, 3 ♀. February and March, 1905.

These specimens appear to be fully typical. One female individual is rather faintly suffused with rosy.

Omalotettix signatipes Bruner.

1906. *Omalotettix signatipes* Bruner, Proc. U. S. Nat. Mus., XXX, p. 673. [Sapucay, Paraguay.]

5 ♂, 9 ♀. February and March, 1905.

This series is readily separable from *nebulosa* by the blunter fasti-

gium," as mentioned by Bruner, and also by the more robust caudal femora. It is apparent from this material that the lower external face of the caudal femora is not always black, specimens indistinguishable otherwise varying in this respect. In the cases where this is not black, it is of the color of the external femoral face. The maculation on the external face also varies in size and intensity.

VILERNA Stål.

1873. *Vilerna* Stål, Recensio Orthopterorum, I, pp. 38, 71.

Type.—*V. œnco-oculata* (De Geer).

Vilerna rugulosa Stål.

1878. *Vilerna rugulosa* Stål, Bihang till K. Svenska Veten.-Akad. Handlingar, V, No. 4, p. 61. [Peru; Rio Janeiro.]

1 ♀. April, 1902.

XIPHIOLA Bolivar.

1896. *Xiphiola* Bolivar, Actas Soc. Españ. Hist. Nat., XXV, p. 17.

Type.—*X. cyanoptera* Bolivar.

Xiphiola borellii Giglio-Tos.

1900. *X[iphiola] Borellii* Giglio-Tos, Boll. Mus. Zool. Anat. Comp., XV, No. 377, p. 5. [Urucum, Brazil.]

1 ♀. May, 1902.

This individual is slightly smaller than the specimen measured by the describer.

SCHISTOCERCA Stål.

Schistocerca infumata Scudder.

1899. *Schistocerca infumata* Scudder, Proc. Amer. Acad. Arts and Sci., XXXIV, p. 457. [Montevideo, Uruguay; Brazil.]

8 ♂, 10 ♀. February and March, 1905.

When compared with the closely allied *S. flavofasciata* (De Geer), the form of the male cerci is found to be a good diagnostic character, these being broadly truncate in *flavofasciata* and distinctly, but not greatly, tapering in *infumata*.

ATRACHELACRIS Giglio-Tos.

1894. *Atrachelacris* Giglio-Tos, Bollett. Mus. Zool. Anat. Comp. Torino, IX, No. 184, pp. 19, 20.

Type.—*A. unicolor* Giglio-Tos.

Atrachelacris unicolor Giglio-Tos.

1894. *Atrachelacris unicolor* Giglio-Tos, Bollett. Mus. Zool. Anat. Comp. Torino, IX, No. 184, p. 21. [Resistencia nel Chaco, Argentina; Asuncion, Paraguay.]

6 ♂, 10 ♀. January to March, 1905.

This is unquestionably true *A. unicolor*, as comparison with the

original measurements demonstrates, the individuals recorded by Bruner as *A. unicolor* from Cordoba and Carcaraña, Argentina being distinct.

DICHROPLUS Stål.

1873. *Dichroplus* Stål, Recensio Orthopterorum, I, p. 78.

Included *D. arrogans patruelis, elicns* and *lemniscatus* (Stål), of which the first can be considered the type.

Dichroplus robustus Bruner.

1906. *Dichroplus robustus* Bruner, Proc. U. S. Nat. Mus., XXX, p. 679. [Sapucay, Paraguay.]

2 ♂, 2 ♀. February and March, 1905.

As the male of this species is at present undescribed, a few notes on the appendages of this sex may be of service.

Furcula present as very minute short fingers lying close together. Supra-anal plate broad with the apex obtuse-angulate and the median ridges approaching to about the middle of the plate, from which caudad they are subparallel. Cerci slender, long, distinctly tapering in the proximal half from a rather broad base to a slender rounded shaft, beyond which they have a slight ventral falcation, being also slightly compressed distad and with the apex acute. Subgenital plate rather short, conical, horizontal, margins straight and with a small apical indentation.

The females are slightly smaller than the measurements given by Bruner, but appear without doubt to be this species. All the specimens are darker than those described by Bruner.

Dichroplus paraguayensis Bruner.

1906. *Dichroplus paraguayensis* Bruner, Proc. U. S. Nat. Mus., XXX, p. 680. [Sapucay, Paraguay.]

7 ♂, 2 ♀. February and March, 1905.

These specimens appear to fully represent this species, which, without other material, would be hard in the female sex to distinguish from *robustus*. One female specimen measures, length of body, 31.5 mm.; length of pronotum, 7.5; length of tegmen, 24; length of caudal femur, 17.5.

Dichroplus exilis Giglio-Tos.

1894. *D[ichroplus] exilis* Giglio-Tos, Boll. Mus. Zool. Anat. Comp., IX, No. 184, pp. 23. [Resistencia nel Chaco, Argentina.]

1 ♂, 3 ♀. February and March, 1905.

Superficially this species bears some resemblance to *D. bergii,* but is, of course, a very different insect, the apparent similarity being chiefly in color pattern.

Dichroplus punctulatus (Thunberg).

1824. *Gr[yllus] punctulatus* Thunberg, Mém. l'Acad. Imp. Sci. St. Pétersb., IX, p. 408. [Brazil.]

9 ♂, 14 ♀. September, 1901; January to March, 1905.

This series presents considerable variation in the intensity and shade of the pronotal markings, as well as in the depth of coloration of the dorsal face of the caudal femora.

Dichroplus dubius Bruner.

1906. *Dichroplus dubius* Bruner, Proc. U. S. Nat. Mus., XXX, p. 682. [Sapucay, Paraguay.]

1 ♂, 7 ♀. February and March, 1905.

These specimens are quite uniform in size, and in coloration vary but slightly in the intensity of the broken dorsal bars on the caudal femora. The very slender cerci of this species are quite peculiar.

Dichroplus bergii (Stål).

1878. *P[ezotettix] Bergii* Stål, Bihang till K. Svenska Vet.-Akad. Handlingar, V, No. 9, p. 6. [Buenos Ayres, Parana, Corrientes.]

15 ♂, 11 ♀. December, 1904; February and March, 1905; May, 1902.

This series varies considerably in the suffusion of the dorsum of the pronotum, and in the depth of color of the tegmina and dorsal face of the caudal femora as well as of the caudal tibiæ.

Dichroplus cinctipes Bruner.

1906. *Dichroplus cinctipes* Bruner, Proc. U. S. Nat. Mus., XXX, p. 683. [Sapucay, Paraguay.]

6 ♂, 12 ♀. February and March, 1905.

This series shows that considerable variation exists in the general size of the females and in the length of the tegmina and wings in the same sex.

LEIOTETTIX Bruner.

1906. *Leiotettix* Bruner, Proc. U. S. Nat. Mus., XXX, pp. 643, 684.

Type.—*L. viridis* Bruner.

Leiotettix viridis Bruner.

1906. *Leiotettix viridis* Bruner, Proc. U. S. Nat. Mus., XXX, p. 685. [Sapucay, Paraguay.]

12 ♂, 11 ♀. January to March, 1905.

This series is quite uniform in size and coloration.

Leiotettix punctipes Bruner.

1906. *Leiotettix punctipes* Bruner, Proc. U. S. Nat. Mus., XXX, p. 686. [Sapucay, Paraguay.]

12 ♀. February and March, 1905.

This species varies somewhat in size, specimens distinctly larger and smaller than the original measurements being in the series. The dorsal section of the external pagina is strongly purplish in the majority of specimens.

Leiotettix sanguineus Bruner.

1906. *Leiotettix sanguineus* Bruner, Proc. U. S. Nat. Mus., XXX, p. 687. [Sapucay, Paraguay.]

3 ♂, 1 ♀. January and March, 1905.

The pale portions of the genæ and pronotum in one specimen are more greenish than flavous.

Leiotettix flavipes Bruner.

1906. *Leiotettix flavipes* Bruner, Proc. U. S. Nat. Mus., XXX, p. 687. [Sapucay, Paraguay.]

5 ♂, 8 ♀. February and March, 1905.

This beautiful species appears to be quite uniform in coloration.

***Leiotettix hastatus** n. sp.

Type: ♂; Sapucay, Paraguay. February 3, 1905. (W. T. Foster.) [Hebard Collection.]

Closely allied to *L. flavipes* Bruner, but differing in the straight cerci, reddish caudal tibiæ, the non-emarginate cephalic margin of the pronotum and the more pronounced angle of the caudal margin of the same.

Size medium; form as usual in the genus. Head with the occiput hardly elevated above the level of the pronotal disk; vertex gently declivent to the fastigium, interspace between the eyes about two-thirds the width of one of the eyes; fastigium slightly broader than long, slightly depressed within the margins but not excavate; frontal costa rounded dorsad, rather broad, subequal in width, slightly constricted ventrad of the ocellus, sulcate for a considerable distance ventrad of the ocellus and around the dorsum of the same; eyes hardly prominent when viewed dorsad, ovate in outline, slightly flattened cephalad, in length slightly less than half that of the infraocular sulcus; antennæ somewhat shorter than the caudal femora, slightly flattened at the apex. Pronotum very slightly depressed mesad, disk slightly narrowed mesad, greatest width of the disk (caudal) contained about once and a half in the length; cephalic margin slightly arcuate, caudal margin obtuse-angulate with the immediate angle slightly flattened; median carina distinct but slight on the prozona, more apparent but low on the metazona, principal sulcus dividing the carinæ decidedly caudad of the middle; lateral angles

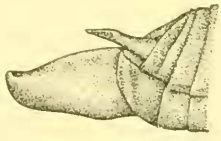


Fig. 13. — *Leiotettix hastatus* n. sp. Lateral view of apex of male abdomen. (× 6.)

rounded on the prozona, developing slight but apparent shoulders on the metazona; lateral lobes distinctly longer than deep, regularly narrowing ventrad, the ventral margin obtuse-angulate. Tegmina slightly exceeding the apex of the abdomen. Prosternal spine pyramidical, moderately acute, directed slightly caudad; interspace between the mesosternal lobes longitudinal, the length distinctly but not greatly exceeding the width; metasternal lobes attingent. Furcula developed as a pair of very short, slight separated fingers; supra-anal plate with the margins converging, a median lanceolate depression in the proximal half very marked; cerci rather short, tapering in the proximal half, the median width no more than half the proximal, distal half slightly compressed, the ventral margin rather straight, the dorsal with a slight expanded shoulder distad of the middle then continuing straight to the acute apex, external face of the distal half slightly excavate; subgenital plate considerably produced, scoop-like, the margin semi-elliptical when viewed dorsad, when viewed laterad straight in the proximal portion but slightly emarginate and depressed distad, the apex on a plane with the base. Cephalic and median limbs with the femora moderately inflated. Caudal femora robust, the length about two and one-half times that of the pronotum and the breadth contained about three and a half times in the length, paginæ distinctly but not very deeply sculptured; caudal tibiæ with nine spines on each margin.

General colors russet, olive-green and gamboge yellow; the russet coloring the tegmina, strongly proximad, weakly toward the apex; the olive-green present in rather broad lateral bars extending from caudad of the eyes across the pronotum and weakly coloring the dorsal exposed portion of the pleura, the dorsal face and the dorsal half of the lateral face of the caudal femora as well as the median and cephalic limbs of the same color; the gamboge yellow colors the genæ, the ventral portion of the lateral lobes of the pronotum, the greater portion of the pleura and the ventral half of the lateral face of the caudal femora. Face very dull olive-green, the dorsum of the head much the same color, separated from the postocular bars by a faint bar of yellow; eyes walnut brown; antennæ cinnamon, darker distad. Pronotum with the dorsum burnt umber with the faintest possible traces of longitudinal lateral bars. Abdomen clay-color. Caudal femora with the genicular arches clove brown, internal face and ventral face and sulcus except for a narrow yellow pregenicular area poppy red; caudal tibiæ washed with dilute orange-vermilion, the spines buffy tipped with black.

Measurements.

Length of body,	24.5 mm.
Length of pronotum,	5 "
Length of tegmen,	18.2 "
Length of caudal femur,	13 "

The type is unique.

SCOTUSSA Giglio-Tos.

1894. *Scotussa* Giglio-Tos, Bollett. Mus. Zool. Anat. Comp. Torino, IX, No. 184, pp. 20, 24.

Type.—*S. impudica* Giglio-Tos.

Scotussa rubripes Bruner.

1906. *Scotussa rubripes* Bruner, Proc. U. S. Nat. Mus., XXX, p. 688. [Sapucay, Paraguay.]

3 ♂, 3 ♀. January to March, 1905.

As stated by Bruner the superficial resemblance of this species to *Leiotettix flavipes* is very great. The male being hitherto unknown some remarks on the appendages may be pertinent.

Furcula very short, minute, placed close together. Supra-anal plate evenly depressed distad. Cerci slender, elongate, tapering in the proximal half, distad of this slightly compressed, slightly falcate, acute and with a distinct sigmoid curve toward the median line. Subgenital plate slightly produced, broad, rather shallow, the apex rectangulate.

The measurements of a male specimen are as follows:

Length of body,	21 mm.
Length of pronotum,	4.5 "
Length of tegmen,	17 "
Length of caudal femur,	10.5 "

PARASCOPAS Bruner.

1894. *Scopas* Giglio-Tos, Bollett. Mus. Zool. Anat. Comp. Torino, IX, No. 184, pp. 20, 28. (Not of Bonaparte.)
1906. *Parascopas* Bruner, Proc. U. S. Nat. Mus., XXX, p. 689.

Type.—*Scopas obesus* Giglio-Tos.

Parascopas obesus (Giglio-Tos).

1894. *S[copas] obesus* Giglio-Tos, Bollett. Mus. Zool. Anat. Comp. Torino, IX, No. 184, p. 29, pl. figs. 5 and 6. [Province of San Pedro, Asuncion, Paraguay.]

10 ♂, 11 ♀. February, 1903 and 1905.

CHLORUS Giglio-Tos.

1898. *Chlorus* Giglio-Tos, Boll. Mus. Zool. Anat. Comp., XIII, No. 311, p. 50, footnote.

Type.—*Paradichroplus borellii* Giglio-Tos.

Chlorus vittatus Bruner.

1906. *Chlorus vittatus* Bruner, Proc. U. S. Nat. Mus., XXX, p. 690. [Sapucay, Paraguay.]

1 ♀. February, 1905.

This specimen fully answers the original description, except that the median carina of the pronotum is hardly perceptible.

OSMILIA Stål.

1873. *Osmilia* Stål, Recensio Orthopterorum, I, p. 68.

Included *Acrydium flavolineatum* De Geer, *Gryllus violaceum, rufipes* and *obliquum* Thunberg, of which *flavolineatum* may be considered the type.

Osmilia violacea (Thunberg).

1824. *Gr[yllus] violaceus* Thunberg, Mém. l'Acad. Imp. Sci. St. Pétérsb., IX, p. 413. [Brazil.]

11 ♂, 9 ♀. January to March, 1905.

This series presents some variation in the depth of the ground color and also in the presence or absence of weak tegminal maculations.